

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2018/2019

BAC1644 – PRINCIPLES OF FINANCE
(All sections / Groups)

27 MAY 2019
2.30 pm – 5.30 pm
(3 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **SIX (6)** pages excluding cover page.
2. Answer **ALL** questions.
3. Marks allocations are shown at the end of each question.

Question 1 (25 marks)

- (a) A firm has sales of RM529,000 for the year. The profit margin is 3.4 percent and the retention ratio is 60 percent. What is the common-size percentage for the dividends paid?

(5 marks)

- (b) Peter's Motor Works has total assets of RM689,400, long-term debt of RM299,500, total equity of RM275,000, net fixed assets of RM497,800, and sales of RM721,500. The profit margin is 4.6 percent. What is the current ratio?

(5 marks)

- (c) Denbo's, Berhad has total equity of RM389,600, long-term debt of RM116,400, net working capital of RM1,600, and total assets of RM627,600. What is the total debt ratio?

(5 marks)

- (d) Angela has just received an insurance settlement of RM35,000. She wants to save this money until her daughter goes to college. If she can earn an average of 5.5 percent, compounded annually, how much does she have saved when her daughter enters college 10 years from now?

(5 marks)

- (e) When you were born, your parents opened an investment account in your name and deposited RM500 into the account. The account has earned an average annual rate of return of 4.8 percent. Today, the account is valued at RM36,911.22. How old are you?

(5 marks)

Continued...

Question 2 (25 marks)

- (a) A 5.5 percent RM1,000 bond matures in seven years, pays interest semiannually, and has a yield to maturity of 6.23 percent. What is the current market price of the bond?

(10 marks)

- (b) The 8 percent, RM1,000 face value bonds of Sweet Sue Foods are currently selling at RM1,057. These bonds have 16 years left until maturity. What is the current yield?

(5 marks)

- (c) New Gadgets is growing at a very fast pace. As a result, the company expects to pay annual dividends of RM 0.55, RM 0.80, and RM 1.10 per share over the next three years, respectively. After that, the dividend is projected to increase by 5 percent annually. The last annual dividend the firm paid was RM0.40 a share. What is the current value of this stock if the required return is 16 percent?

(10 marks)

Question 3 (25 marks)

- (a) What is the net present value of a project that has an initial cost of RM40,000 and produces cash inflows of RM8,000 a year for 11 years if the discount rate is 15 percent? Should the firm accept or reject the project and why?

(6 marks)

- (b) Malaysia Importers would like to spend RM221,000 to expand its warehouse. However, the company has a loan outstanding that must be repaid in 2.5 years and thus will need RM221,000 at that time. The warehouse expansion project is expected to increase the cash inflows by RM58,000 in the first year, RM139,000 in the second year, and RM210,000 a year for the following 2 years. Using payback period, evaluate the acceptability of this project. Should the firm expand at this time? Why or why not?

(5 marks)

- (c) Delta Mu Delta is considering purchasing some new equipment costing RM400,000. The equipment will be depreciated on a straight-line basis to a zero book value over the four-year life of the project. Projected net income for the four years is RM18,900, RM21,300, RM26,700, and RM25,000. What is the average accounting rate of return?

(5 marks)

Continued...

Question 3 (continued..)

- (d) Darn Co has undertaken market research at a cost of RM200,000 in order to forecast the future cash flows of an investment project with an expected life of four years, as follows:

Year	1	2	3	4
Sales Revenue (RM 000)	1250	2570	6890	4530
Expenses (excluding depreciation and interest (RM 000))	500	1000	2500	1750
Depreciation (RM 000)	50	50	50	50

The capital cost of the investment project, payable at the start of the first year, will be RM2,000,000. The investment project will have zero scrap value at the end of the fourth year. Darn Co pays tax on profits at an annual rate of 30% per year. The cost of capital is 12% per year. Calculate the net present value (NPV) and comment on its financial acceptability.

(9 marks)

Question 4 (25 marks)

- (a) XYZ Corporation just paid an annual dividend of RM2.45 per share. This dividend is expected to increase by 3.3 percent annually. Currently, the firm has a beta of 1.09 and a stock price of RM36 a share. The risk-free rate is 4.2 percent and the market rate of return is 12.6 percent.

(i) Using Capital Asset Pricing Model (CAPM), evaluate the cost of equity capital for this firm. (4 marks)

(ii) Using Dividend Growth Model, evaluate the cost of equity capital for this firm. (4 marks)

(iii) Calculate the average of the cost of equity capital. (2 marks)

- (b) What are the differences between a regular cash dividend, a liquidating dividend, a special dividend, and an extra cash dividend?

(5 marks)

Continued...

Question 4 (Continued...)

- (c) The best-selling pair of roller skates, The Excellent Store offers sales for RM79.99 a pair. The store consistently sells 5,700 pairs of these roller skates every year. The fixed costs to order more skates is RM68 and the carrying costs are RM1.95 per pair. Determine the economic order quantity (EOQ) and discuss the impact of EOQ on the total inventory cost in a firm.

(5 marks)

- (d) Good Morning Foods has expected earnings before interest and taxes of RM48,600, an unlevered cost of capital of 13.2 percent, and debt with both a book and face value of RM25,000. The debt has an 8.5 percent coupon. The tax rate is 34 percent. Determine the value of the firm.

(5 marks)

End of Page

Present Value and Future Value Tables

Table A-1 Future Value Interest Factors for One Dollar Compounded at k Percent for n Periods: $FVIF_{k,n} = (1 + k)^n$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1100	1.1200	1.1300	1.1400	1.1500	1.1600	1.2000	1.2400	1.2500	1.3000
2	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100	1.2321	1.2544	1.2769	1.2996	1.3225	1.3456	1.4400	1.5376	1.5625	1.6900
3	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310	1.3676	1.4049	1.4429	1.4815	1.5209	1.5609	1.7280	1.9066	1.9531	2.1970
4	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641	1.5181	1.5735	1.6305	1.6890	1.7490	1.8106	2.0736	2.3642	2.4414	2.8561
5	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5385	1.6105	1.6851	1.7623	1.8424	1.9254	2.0114	2.1003	2.4883	2.9316	3.0518	3.7129
6	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716	1.8704	1.9738	2.0820	2.1950	2.3131	2.4364	2.9860	3.6352	3.8147	4.8268
7	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487	2.0762	2.2107	2.3526	2.5023	2.6600	2.8262	3.5832	4.5077	4.7684	6.2749
8	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436	2.3045	2.4760	2.6584	2.8526	3.0590	3.2784	4.2998	5.5895	5.9605	8.1573
9	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579	2.5580	2.7731	3.0040	3.2519	3.5179	3.8030	5.1598	6.9310	7.4506	10.504
10	1.1046	1.2190	1.3439	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937	2.8394	3.1058	3.3946	3.7072	4.0456	4.4114	6.1917	8.5944	9.3132	13.786
11	1.1157	1.2434	1.3842	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531	3.1518	3.4785	3.8359	4.2262	4.6524	5.1173	7.4301	10.657	11.642	17.922
12	1.1268	1.2682	1.4258	1.6010	1.7969	2.0122	2.2522	2.5182	2.8127	3.1384	3.4985	3.8960	4.3345	4.8179	5.3503	5.9360	8.9161	13.215	14.552	23.298
13	1.1381	1.2935	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0668	3.4523	3.8833	4.3635	4.8980	5.4924	6.1528	6.8858	10.699	16.386	18.190	30.288
14	1.1495	1.3155	1.5126	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975	4.3104	4.8871	5.5348	6.2613	7.0757	7.9875	12.839	20.319	22.737	39.374
15	1.1610	1.3459	1.5580	1.8009	2.0789	2.3968	2.7590	3.1722	3.6425	4.1772	4.7846	5.4736	6.2543	7.1379	8.1371	9.2655	15.407	25.196	28.422	51.186
16	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950	5.3109	6.1304	7.0673	8.1372	9.3576	10.748	18.488	31.243	35.527	66.542
17	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	5.8951	6.8660	7.9861	9.2765	10.761	12.468	22.166	38.741	44.409	85.504
18	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599	6.5436	7.6900	9.0243	10.575	12.375	14.463	26.623	48.039	55.511	112.455
19	1.2081	1.4568	1.7535	2.1068	2.5270	3.0258	3.6165	4.3157	5.1417	6.1159	7.2833	8.6428	10.197	12.056	14.232	16.777	31.948	59.568	69.389	146.192
20	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	8.0623	9.6463	11.523	13.743	16.367	19.461	38.338	73.864	86.736	190.050
21	1.2324	1.5157	1.8603	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088	7.4002	8.9492	10.804	13.021	15.668	18.822	22.574	46.005	91.592	108.420	247.065
22	1.2447	1.5460	1.9161	2.3699	2.9253	3.6035	4.4304	5.4355	6.6586	8.1403	9.9336	12.100	14.714	17.861	21.645	26.186	55.206	113.574	135.525	321.184
23	1.2572	1.5769	1.9736	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579	8.9543	11.026	13.552	16.627	20.362	24.891	30.376	66.247	140.831	169.407	417.539
24	1.2697	1.6084	2.0328	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111	9.8497	12.239	15.179	18.788	23.212	28.625	35.236	79.497	174.631	211.758	542.801
25	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.835	13.585	17.000	21.231	26.462	32.919	40.874	95.395	216.542	264.698	705.641
30	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.063	13.268	17.449	22.892	29.960	39.116	50.990	66.212	85.850	237.376	634.820	807.794	*
35	1.4166	1.9999	2.8139	3.9461	5.5160	7.6861	10.677	14.785	20.414	28.102	38.575	52.800	72.069	98.100	133.176	180.314	590.668	*	*	*
36	1.4308	2.0399	2.8983	4.1039	5.7918	8.1473	11.424	15.966	22.251	30.913	42.818	59.136	81.437	111.834	153.152	208.164	708.802	*	*	*
40	1.4889	2.2080	3.2620	4.8010	7.0400	10.286	14.974	21.725	31.409	45.259	65.001	93.051	132.782	188.884	267.864	378.721	*	*	*	*
50	1.6446	2.8916	4.3839	7.1067	11.467	18.420	29.457	46.902	74.358	117.381	184.555	289.002	450.736	700.233	*	*	*	*	*	*

Table A-2 Future Value Interest Factors for a One-Dollar Annuity Compounded at k Percent for n Periods: $FVIFA_{k,n} = [(1 + k)^n - 1] / k$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	1.0000	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1100	1.1200	1.1300	1.1400	1.1500	1.1600	1.2000	1.2400	1.2500	1.3000
2	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000	2.1100	2.1200	2.1300	2.1400	2.1500	2.1600	2.2000	2.2400	2.2500	2.3000
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100	3.3421	3.3744	3.4069	3.4396	3.4725	3.5056	3.6400	3.7776	3.8125	3.9900
4	4.0604	4.1216	4.1836	4.2465	4.3101	4.3745	4.4399	4.5061	4.5731	4.6410	4.7097	4.7793	4.8498	4.9211	4.9934	5.0665	5.3680	5.6842	5.7656	6.1870
5	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847	6.1051	6.2278	6.3528	6.4803	6.6101	6.7424	6.8771	7.4416	8.0484	8.2070	9.0431
6	6.1520	6.3081	6.4684	6.6330	6.8019	6.9763	7.1533	7.3359	7.5233	7.7156	7.9129	8.1152	8.3227	8.5355	8.7537	8.9775	9.9299	10.980	11.259	12.756
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872	9.7833	10.088	10.403	10.730	11.067	11.414	12.916	14.615	15.073	17.583
8	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.260	10.637	11.028	11.436	11.859	12.290	12.757	13.233	13.727	14.240	16.499	19.123	19.842	23.858
9	9.3685	9.7546	10.159	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.164	14.776	15.416	16.085	16.786	17.519	20.799	24.712	25.802	32.015
10	10.462	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193	15.937	16.722	17.549	18.420	19.337	20.304	21.321	25.959	31.643	33.253	42.619
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.645	17.560	18.531	19.561	20.655	21.814	23.045	24.349	25.733	32.150	40.238	42.566	56.405
12	12.683	13.412	14.192	15.026	15.917	16.870	17.888	18.977	20.141	21.384	22.713	24.133	25.650	27.271	28.902	30.650	39.581	50.895	54.208	74.327
13	13.809	14.680	15.618	16.627	17.713	18.882	20.141	21.495	22.953	24.523	26.212	28.029	29.985	32.089	34.352	36.786	48.497	64.110	68.760	97.625
14	14.947	15.974	17.086	18.292	19.599	21.015	22.550	24.215	26.019	27.975	30.085	32.393	34.883	37.581	40.505	43.672	59.196	80.496	86.949	127.913
15	16.097	17.293	18.599	20.024	21.579	23.276	25.129	27.152	29.361	31.772	34.405	37.280	40.417	43.842	47.580	51.660	72.035	100.815	109.687	167.286
16	17.258	18.639	20.157	21.825	23.657	25.673	27.888	30.324	33.003	35.950	39.190	42.753	46.672	50.980	55.717	60.925	87.442	126.011	136.109	218.472
17	18.430	20.012	21.762	23.698	25.840	28.213	30.840	33.750	36.974	40.545	44.501	48.884	53.739	59.118	65.075	71.673	105.931	157.253	173.636	285.014
18	19.615	21.412	23.414	25.645	28.132	30.906	33.999	37.450	41.301	45.599	50.396	55.750	61.725	68.394	75.836	84.141	128.117	195.994	218.046	371.518
19	20.811	22.841	25.117	27.671	30.539	33.760	37.379	41.446	46.018	51.159	56.939	63.440	70.749	78.969	88.212	98.603	154.740	244.033	273.556	483.973
20	22.019	24.297	26.870	29.778	33.066	36.786	40.995	45.762	51.160	57.275	64.203	72.052	80.947	91.025	102.444	115.380	186.688	303.601	342.945	630.165
21	23.239	25.783	28.676	31.969	35.719	39.993	44.865	50.423	56.765	64.002	72.285	81.699	92.470	104.768	118.810	134.841	225.026	377.465	429.681	820.215
22	24.472	27.299	30.537	34.248	38.505	43.392	49.006	55.457	62.873	71.403	81.214	92.503	105.491	120.436	137.632	157.415	271.031	469.056	538.101	*
23	25.716	28.845	32.453	36.618	41.430	46.996	53.436	60.893	69.532	79.543	91.148	104.503	120.205	138.297	159.276	183.601	326.237	582.630	673.626	*
24	26.973	30.422	34.426	39.083	44.502	50.816	58.177	66.765	76.790	88.497	102.174	118.155	136.831	158.659	184.168	213.978	392.484	723.461	843.033	*
25	28.243	32.030	36.459	41.646	47.727	54.865	63.249	73.106	84.701	98.347	114.413	133.334	155.620	181.871	212.793	249.214	471.981	898.092	*	*
26	29.530	33.617	38.505	44.111	50.605	58.249	67.993	79.000	91.691	106.408	123.869	144.534	168.816	197.045	228.611	273.944	525.456	1025.456	*	*
27	30.835	35.212	40.505	46.530	53.425	61.569	71.713	83.100	96.981	113.000	131.800	153.840	180.560	212.320	249.560	303.840	580.000	1150.000	*	*
28	32.158	36.833	42.500	48.950	56.250	64.875	75.438	87.250	101.563	118.875	138.625	161.375	188.625	221.875	261.875	320.625	610.625	1250.625	*	*
29	33.499	38.463	44.250	50.875	58.500	67.500	79.375	92.500	108.125	126.875	148.625	173.875	203.125	238.125	288.125	353.125	683.125	1403.125	*	*
30	34.785	40.568	47.575	56.085	66.439	78.058	91.283	106.308	124.494	145.921	171.213	201.494	237.333	280.167	340.833	420.167	820.167	1700.167	*	*
35	41.660	49.994	60.462	73.652	90.320	111.435	138.237	172.317	215.711	271.024	341.590	431.663	546.681	693.573	881.170	*	*	*	*	*
36	43.077	51.994	63.276	77.598	95.836	119.121	148.913	187.102	236.125	299.127	380.164	484.463	618.749	791.673	*	*	*	*	*	*
40	48.886	60.402	75.401	95.026	120.800	154.762	199.635	259.057	337.882	442.593	581.826	767.091	*	*	*	*	*	*	*	*
50	64.463	84.579	112.797	152.667	209.348	290.336	406.529	573.770	815.084	*	*	*	*	*	*	*	*	*	*	*

Present Value and Future Value Tables

Table A-3 Present Value Interest Factors for One Dollar Discounted at k Percent for n Periods: $PVIF_{k,n} = 1 / (1 + k)^n$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561	0.7432	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.5787	0.5245	0.5120	0.4552
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718	0.5523	0.4823	0.4230	0.4096	0.3501
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972	0.4761	0.4019	0.3411	0.3277	0.2693
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8706	0.8134	0.7699	0.7297	0.6911	0.6545	0.6202	0.5879	0.5574	0.5285	0.5011	0.4751	0.4506	0.4274	0.4056	0.3291	0.2693	0.2563	0.1994
8	0.9235	0.8535	0.7894	0.7307	0.6846	0.6481	0.6130	0.5799	0.5485	0.5185	0.4897	0.4621	0.4358	0.4106	0.3866	0.3637	0.2861	0.2263	0.2133	0.1554
9	0.9143	0.8368	0.7664	0.7026	0.6595	0.6251	0.5919	0.5599	0.5292	0.4997	0.4711	0.4435	0.4170	0.3916	0.3674	0.3443	0.2657	0.2059	0.1929	0.1350
10	0.9053	0.8203	0.7441	0.6758	0.6349	0.5924	0.5603	0.5292	0.4997	0.4711	0.4435	0.4170	0.3916	0.3674	0.3443	0.3212	0.2415	0.1817	0.1687	0.1108
11	0.8963	0.8043	0.7224	0.6496	0.6097	0.5681	0.5369	0.5067	0.4781	0.4504	0.4236	0.3977	0.3726	0.3483	0.3250	0.3018	0.2211	0.1613	0.1483	0.0904
12	0.8874	0.7885	0.7014	0.6245	0.5856	0.5449	0.5136	0.4842	0.4564	0.4295	0.4035	0.3783	0.3538	0.3303	0.3070	0.2837	0.2021	0.1423	0.1293	0.0714
13	0.8787	0.7730	0.6810	0.6006	0.5627	0.5229	0.4915	0.4620	0.4350	0.4089	0.3836	0.3590	0.3353	0.3124	0.2894	0.2664	0.1848	0.1250	0.1120	0.0541
14	0.8700	0.7579	0.6611	0.5775	0.5405	0.5015	0.4699	0.4403	0.4132	0.3879	0.3624	0.3386	0.3156	0.2934	0.2711	0.2489	0.1673	0.1075	0.0945	0.0366
15	0.8613	0.7430	0.6419	0.5553	0.5193	0.4801	0.4484	0.4187	0.3915	0.3661	0.3404	0.3173	0.2950	0.2735	0.2520	0.2306	0.1489	0.0891	0.0761	0.0182
16	0.8528	0.7284	0.6232	0.5339	0.4988	0.4594	0.4276	0.3978	0.3705	0.3450	0.3191	0.2958	0.2734	0.2518	0.2302	0.2087	0.1269	0.0671	0.0541	0.0162
17	0.8444	0.7142	0.6050	0.5134	0.4792	0.4405	0.4086	0.3787	0.3513	0.3257	0.3000	0.2765	0.2540	0.2323	0.2106	0.1890	0.1071	0.0473	0.0343	0.0164
18	0.8360	0.7002	0.5874	0.4936	0.4603	0.4223	0.3903	0.3603	0.3328	0.3071	0.2813	0.2587	0.2370	0.2152	0.1934	0.1717	0.0897	0.0299	0.0169	0.0190
19	0.8277	0.6864	0.5703	0.4746	0.4421	0.4049	0.3728	0.3427	0.3151	0.2893	0.2634	0.2407	0.2189	0.1970	0.1751	0.1533	0.0713	0.0115	0.0185	0.0191
20	0.8195	0.6730	0.5537	0.4564	0.4247	0.3874	0.3552	0.3251	0.2974	0.2715	0.2455	0.2227	0.2008	0.1789	0.1569	0.1350	0.0530	0.0117	0.0187	0.0193
21	0.8114	0.6598	0.5375	0.4388	0.4070	0.3696	0.3373	0.3071	0.2793	0.2533	0.2273	0.2044	0.1824	0.1604	0.1384	0.1164	0.0344	0.0121	0.0191	0.0197
22	0.8034	0.6468	0.5219	0.4220	0.3901	0.3526	0.3202	0.2900	0.2621	0.2361	0.2100	0.1870	0.1649	0.1428	0.1207	0.1000	0.0179	0.0149	0.0191	0.0197
23	0.7954	0.6342	0.5067	0.4057	0.3737	0.3361	0.3036	0.2733	0.2453	0.2192	0.1931	0.1700	0.1478	0.1256	0.1034	0.0812	0.0191	0.0161	0.0191	0.0197
24	0.7876	0.6217	0.4919	0.3901	0.3580	0.3203	0.2877	0.2573	0.2292	0.2031	0.1770	0.1538	0.1315	0.1092	0.0869	0.0646	0.0191	0.0161	0.0191	0.0197
25	0.7798	0.6095	0.4776	0.3757	0.3435	0.3057	0.2731	0.2426	0.2145	0.1884	0.1623	0.1390	0.1166	0.0942	0.0718	0.0494	0.0191	0.0161	0.0191	0.0197
30	0.7419	0.5521	0.4120	0.3083	0.2734	0.2344	0.1994	0.1684	0.1403	0.1142	0.0900	0.0676	0.0461	0.0255	0.0158	0.0081	0.0191	0.0161	0.0191	0.0197
35	0.7059	0.5000	0.3554	0.2534	0.2183	0.1791	0.1440	0.1130	0.0869	0.0627	0.0403	0.0207	0.0110	0.0053	0.0027	0.0011	0.0191	0.0161	0.0191	0.0197
40	0.6698	0.4902	0.3450	0.2437	0.2085	0.1693	0.1341	0.1030	0.0769	0.0527	0.0303	0.0127	0.0053	0.0027	0.0011	0.0005	0.0191	0.0161	0.0191	0.0197
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	0.0191	0.0161	0.0191	0.0197

Table A-4 Present Value Interest Factors for a One-Dollar Annuity Discounted at k Percent for n Periods: $PVIFA = [1 - 1/(1 + k)^n] / k$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6051	1.5278	1.4566	1.4400	1.3609
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3285	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9976	3.8887	3.7845	3.6847	3.3255	3.0205	2.9614	2.6427
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8694	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.0310	3.5655	3.4631	3.0190
10	9.4713	8.9626	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.1925	3.6819	3.5705	3.0915
11	10.368	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6889	5.4527	5.2337	5.0286	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9866	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	4.5327	3.9124	3.7801	3.2233
14	13.004	12.106	11.296	10.563	9.8986	9.2950	8.7455	8.2442	7.7852	7.3667	6.9819	6.6282	6.3025	6.0021	5.7248	5.4675	4.6106	3.9616	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5955	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	4.6755	4.0013	3.8593	3.2682
16	14.718	13.578	12.561	11.652	10.838	10.106	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7296	4.0333	3.8874	3.2832
17	15.562	14.292	13.166	12.166	11.274	10.477	9.7632	9.1216	8.5438	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	4.7746	4.0591	3.9059	3.2948
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	4.8122	4.0799	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6036	8.9501	8.3649	7.8333	7.3558	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.8181	9.1285	8.5196	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	4.8695	4.1103	3.9539	3.3158
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6487	8.0751	7.5620	7.1016	6.6870	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.558	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.458	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8632	8.2684	7.7184	7.2297	6.7921	6.3988	6.0442	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	25.808	22.396	19.600	17.292	15.372	13.765	12.408	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1722	4.9789	4.1601	3.9950	3.3321
35	29.408	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8786	8.1924	7.5979	7.0790	6.6231	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.045	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6572	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333